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sciences and technologies must be used in tandem (transport, health, the environment and urban development) to improve collective services, the quality of life, working condition and the educational and cultural framework.

A POLICY OF PARTICIPATION

If there is little justification for assuming limits to science and technology, the report concludes, there are limitations imposed by political, economic, social or moral factors which may retard, inhibit or paralyze both scientific discovery and technical innovation. "The most intractable problems lie not in the potential of science and technology as such but rather in the capacity of our economic systems to make satisfactory use of this potential. The success of adjustment policies will largely depend on the ability of our societies to exploit their intellectual and technological capital in responding to the social and economic challenges confronting us in the final decades of this century."

This implies that technical change is no more an end in itself than economic growth: "It must find its ultimate legitimization and indispensable political support in a high degree of correspondence with the aspirations and decisions of the population of our countries." The experts stress that while the public, over the past thirty years, has become accustomed to the economic aspects of the management of society, much remains to be done to add to its knowledge of the implications and potentialities of technology.

"The demand for public participation is the legitimate expression of a more educated public in a period of profound change, which entails also changes in values and a measure of dissatisfaction with the idea that problems can best be presented and decisions taken by the bureaucracy." Fuller information and education open the door to more balanced perception of the technological options and the stakes at issue. "Truly democratic participation is the only guarantee for our societies to overcome the resistance inevitably generated by the technical changes upon which their survival depends."

If the health of the innovative system is to be restored, the acceptance of a higher rate of technical change depends on a widespread social commitment. "This commitment will be forthcoming only if there is a satisfactory balance between the generation of new employment and the loss of old jobs and if technical change is welcomed in our societies because it is perceived to improve the quality of life." Thus, the combination of changes which make up the new economic and social context calls for the establishment of new sorts of relationships in the area of science and technology—not only between those responsible for different kinds of public policy but also between scientists, engineers, technicians and industrialists on the one hand and, on the other, trade unions, consumers' organizations and representatives of the public. ●

PRIVACY PROTECTION

● Mr. BAYH. Mr. President, yesterday the Senate passed S. 1790, legislation which I and several of my colleagues introduced in response to the Supreme Court's decision in the case of *Zurcher* against *Stanford Daily*. It has been almost 2 years since the Court handed down a ruling which came as a surprise to many of us. A majority of the Court said that a police officer armed with a warrant could present himself at the office or home of any one of us, without notice, and forcibly search the premises for evidence of a crime, even though we knew nothing of and were not implicated

in any way in the offense under investigation.

In our Nation's heritage there has long been embedded the notion that a man's house is his castle. As William Pitt said, the poorest man in his cottage may bid defiance to all forces of the crown. If we fear, its roof may shake, the wind may blow through it, the storm may enter, but the King of England cannot enter.

Well before our Bill of Rights, our English legal traditions proclaimed that there are boundaries beyond which the state cannot intrude on people's lives and property. In America, the colonists suffered long and painful experience with the King's men entering and ransacking homes and businesses on the mere showing of general warrants or writs of assistance. It was out of these traditions and personal encounters that the fourth amendment was drafted to establish "the right of the people to be secure in their persons, houses, papers, and effects." Suddenly, the *Stanford Daily* case made clear to us that there were limits we had not known of in our "right to be secure."

I was particularly concerned by the chilling effects the Court decision would pose on the vigorous exercise of first amendment rights by the press. As our hearings clearly showed, the very nature of the news media requires them to gather information concerning a wide variety of people and organizations. When investigating corruption, the fruits of these investigations could almost routinely be considered "evidence" relating to crimes and would therefore be subject to seizure in unannounced police raids of newspapers, radio, and television stations.

Since the Supreme Court decision two other newsroom searches have come to our attention making quick action on this legislation even more important. One occurred in Flint, Mich., in the newsroom of a small local paper, the other in Boise, Idaho, at a local TV station newsroom. The video tapes taken of the police search of the Boise TV station and the reports of that search, which has been widely characterized as almost a raid of the station's tape library, make clear just how serious this problem is, not only for the press but for all of us who rely upon the press to give us the information we want and need about our communities, our Government, and our fellow citizens.

I believe S. 1790 addresses the underlying issue posed by the Supreme Court: How to balance the rights of individual citizens and the rights of Government. Many citizens today are concerned that this balance is being lost. At times, the raw power of the Government, the size of the bureaucracy, the blizzard of regulations, and the tax burden seem to overwhelm the individual American citizen. With the *Stanford Daily* decision, we have encountered a new and even more disturbing issue—the right of the Government to search through confidential information for evidence of someone else's crimes.

Therefore, we have to ask ourselves: How do we balance the offensive intrusion on the privacy of the ordinary citi-

zen against society's interest in law enforcement? It is not an easy question to answer. As Justice Jackson remarked over 30 years ago:

The right to be secure against searches and seizures is one of the most difficult to protect.

Certainly one of our first responsibilities is to adequately ascertain just how society's interest in law enforcement is affected by protecting the individual from unannounced searches. Will law enforcement, in fact, be weakened by insisting on less intrusive investigative means when dealing with people who are not involved in any crime? For me, common sense tends to dictate that there are reasons to treat third parties differently from suspects. If we do not, it is a strong possibility that the *Stanford Daily* type search will become commonplace.

The Citizens Privacy Protection Act of 1980 provides broad protections against searches without a subpoena by Federal, State, and local authorities for documentary materials which are in the possession of those engaged in first amendment activities. When materials consist of work product a general no-search rule applies, when they are documentary materials other than work product a subpoena-first rule is generally applicable.

After the Justice Department objected to a bill which would cover all innocent third parties who would have confidential relationships with clients such as lawyers and doctors, a compromise was reached which is contained in section 201 of S. 1790. This section permits the Federal law enforcement agencies to carry out their functions operating under a set of established guidelines to prevent unnecessary and unconstitutional violations of our citizens' privacy.

It has been said from time to time that law enforcement officers rarely, if ever, abuse their authority to search, and that therefore it is unnecessary to legislate. Experience even in the 2 years since the Court's decision has shown us that instances of abuse do occur. Even beyond the evidence of abuse, however, we must look to the potential for abuse. Our liberties are too fragile to be assumed. I am reminded of Thomas Jefferson, writing in some alarm from his post in revolutionary France to the drafters of the American Constitution, when he learned that they had not included a bill of rights in the document, he warned them:

You must specify your liberties and put them down on paper.

With that admonition in mind, the Senate has acted today. ●

PRAYER IN PUBLIC SCHOOLS—STATEMENT OF DR. WILLIAM R. BRIGHT

● Mr. ARMSTRONG. Mr. President, over the last several years, the issue of prayer in public schools has generated much controversy but little insight. Unfortunately, the question of when and if to permit voluntary prayer has become so emotionally supercharged that rational discussion has been hindered.

That is why I am particularly pleased to call the attention of my colleagues

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Data on productivity growth indicate that, after the very rapid increase of the 1950s, there was a levelling-off in most countries or even a decline beginning in the late 1960s (with significant differences between sectors, of course). After 1973 a falling off in productivity or a persistent slowdown was the rule. What lies behind this break in trend?

PRODUCTIVITY AND PRICES

"Economists agree on a list of factors but are not in full agreement regarding the weights to assign to each, or upon the fundamental mechanisms of causation", the report notes. It is useless, the report adds, to assign specific weights to the various contributory factors: demographic changes in the composition of the workforce; a shift in the allocation of the workforce away from high productivity industries to the service sector where productivity growth seems to be lower (and is admittedly more difficult to measure); inflationary recession after the 1973 oil-price rise, etc.

In particular, the reinforcement of environmental and safety regulations has necessitated investment and industrial R & D of a kind which may have slowed down the growth of productivity as measured. But it is important to recognise that these shifts in resource allocation were the very object of the regulations and that they reflect a change in social and private values. "A broader method of assessing the net social benefits of economic activity that on the basis of GNP would have revealed less of a decline in productivity growth. But GNP, as we measure it, does not directly value environmental quality or safety, and these shifts in resources therefore show up in the decline in measured productivity growth."

The report adds another factor, the restrictive fiscal and monetary policies applied since 1973 to counter inflation and balance-of-payments deficits. There can be a dilemma between the needs of macro-economic and technological policies. Restrictions on demand growth has discouraged physical investment, curbed the rate at which new technologies are introduced and damped down the incentives to carry out R & D while the deceleration of productivity growth has cut the size of the product to be shared out and hence reduced the impact of the anti-inflationary measures.

How can one assess whether the un-measured costs of technical advance outweigh its un-measured benefits? This question, posed at several points in their analysis, is raised by the experts in the context of inflation. For if the cost-of-living index more adequately reflected certain improvements in the quality of the product or in the quality of the environment—which it does not—the price increase to be fed into escalator clauses would be less, and politicians would be less concerned about inflation and less prone to draw in the economic reins, since measured inflation would be less. We are not denying here that inflation is a serious problem in the OECD countries, the experts insist. "We ask consideration, however, of the possibility that our instruments for measuring the problem may in fact magnify it."

Technical change may of course also be inflationary if it means the introduction of technologies which have only minimal real benefits as compared to their costs: certain kinds of hospital equipment are cited as a recent example.

Finally, the increase in R & D costs of the last decade may spur inflationary pressures—directly, by increasing the R & D costs that need to be amortized over the life of a new product or process, or indirectly by damping down the rate of technical progress.

TECHNICAL CHANGE AND EMPLOYMENT

There are numerous signs that there is now a strong bias towards capital-using tech-

nologies rather than labour-using ones. The capital-intensive micro-electronic revolution (micro-processors, micro-computers, etc.) with its favourable growth prospects can of course contribute to a rapid increase in demand, boost investment and, as it spreads through the economy, help those sectors to adjust where productivity is low. But there is also a dark side to the picture which suggests proceeding with caution.

In all the industrialized countries, employment in agriculture has continued to decline while farm output has continued to increase. In industry, the number of jobs expanded substantially during the 1950s, and fluctuated during the 1960s, but over the last decade a trend towards stagnating or even declining employment can be discerned. Only in the service sector has employment increased. Are these trends likely to persist in the 1980s? The answer, says the report, will depend mainly on whether or not OECD countries are able to relax their policies of demand growth restriction. But there are other factors which must be taken into account when considering the prospects for any resumption of employment growth in industry: the relative capital intensity of the various sectors, the rate of introduction of more capital-intensive techniques and changes in the international distribution of industry.

However, if the service sector is to be the source of the new jobs, technical change must proceed at a pace and in directions which will ensure that the new activities offset the displacement or elimination of jobs. But the information sector which accounts for an important part of the services is highly vulnerable to the impact of the micro-electronic revolution, and technical change may, in the medium term, have adverse effects on employment in that sector.

"The higher society's standard of living, the smaller the proportion of the labour force which must be employed to produce those goods and services which satisfy the essential needs of the population", the report notes. "The sectors which satisfy other needs must therefore make it possible to offset any reduction in the level of employment in the essential manufacturing industries. If this is correct, it must mean not the loss or absence of employment but the creation of an increasing number of new occupations and leisure activities. Two questions therefore arise: to what extent the growth of the service sector will compensate and even over-compensate, for the reduction in the labour force in manufacturing, a process similar to that experienced in the transfer of employment from agriculture to industry; and in what conditions technical progress will modify the very nature of work and leisure by creating activities and occupations increasingly remote from traditional production tasks."

Thus, what will happen in the coming decade is an open question. The experts take neither a pessimistic nor an optimistic view but emphasize that demand management policies, though necessary, are not sufficient to solve the structural problems which prevent conventional policies from being effective. Conversely, technical innovation, far from being peripheral, is central to the solution of these problems and can facilitate the use of demand management policies.

"Historical performance as well as theoretical analysis suggest that it may be easier to maintain full employment when technical advance is rapid than when it is slow provided the direction of technical change is not adverse." Hence, the importance to governments of being aware of the potential problems involved in a strongly capital-intensive technical advance rather than a labour-intensive one. This is why the rate and direction of technical change are at the heart of economic policy options.

The conclusions and recommendations of the experts revolve around the concern to overcome "the cultural and organizational problem" raised by communication between economic and social policy makers and those responsible for science and technology policies. It is by integrating research and innovation policies more closely with other aspects of public policy, in particular economic and social policy, that governments can implement decisions that take into account both the opportunities provided and the constraints imposed by science and technology.

THE TECHNOLOGICAL IMPERATIVE AND SOCIAL OBJECTIVES

"We do not subscribe to the denigration of technical change as such" the experts note. "We are convinced that technological opportunities have not been exhausted. When society provides an environment appropriate to the encouragement and adaptation of technical change, there is a vast potential for new useful technologies and related scientific advances." This conclusion led the experts to emphasize the importance of three objectives:

Maintaining and improving the innovative capacity.

The structural adaptation of our economies hinges upon the technological imperative; the report accordingly stresses the measures by which governments may strengthen innovative capacity in manufacturing and the services and fundamental research in the universities. This is the most revealing sign of change in the economic and social context compared with the previous decade: the debate which then centered on the contributions of R & D to economic growth, today focusses on the dangers faced by research and innovation as a consequence of the slowdown in growth. Innovation policies must once again be viewed in a long-term perspective, and basic research must be shielded from the consequences of recession.

Sustaining a higher rate of technical advance and productivity increase.

The group makes specific recommendations on the need to support research into fundamental technologies the achievement of which depends on research which may appear in the view of the universities too applied and in the view of industrial firms too risky or ill-defined. Such technologies (e.g., corrosion prevention and control, materials resistance, etc.) may have wide application in essential sectors of the economy—agriculture, energy, mechanical engineering, industrial chemistry.

In this context the experts stress the need for technological pluralism, by which they mean keeping the door open to alternative technological solutions in order to avoid being caught short, as in the energy crisis, by political or technological "surprises".

The constraints of the new context are such that attention must be given to scientific and technological research which can help overcome specific bottlenecks: environmental regulations, adjustment of productive capacity to more competitive products, more selectivity in long-term research, and training and retraining of manpower in the micro-electronic revolution.

Promoting social innovation and technologies.

The technological imperative is only one of the challenges made by the new context: the transfer of demand to services, public and private, also has repercussions for scientific and technical research which could help improve the quality and efficiency of social services. Developing and implementing "social innovations and technologies" call for special support from governments since the organization of demand here is less clear than in the marketing of consumer goods. The social